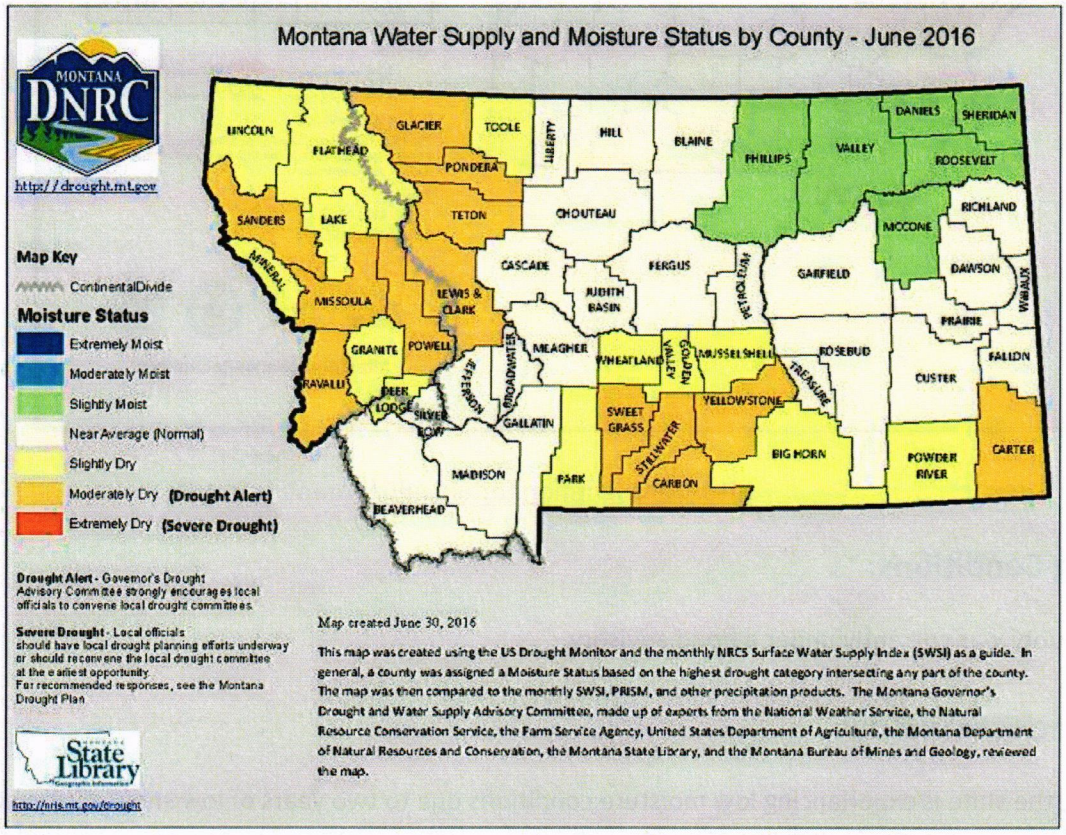
Montana Water Supply Monthly Report: July 2016

Overview:

The state as a whole is dealing with two years running of low snowpack coupled with early runoff. The spring melt occurred about 2-3 weeks early this year and all mountain snowpack reserves were depleted by the middle of May. As a result, the state is currently at the mercy of summer rains to make up any deficit in soil moisture or stream flows. The notable exception to this story is in the northeast of the state, where record rainfalls have led to plentiful water conditions and even reports of late-season flooding. Here is a map summarizing conditions as they were at the end of June 2016.



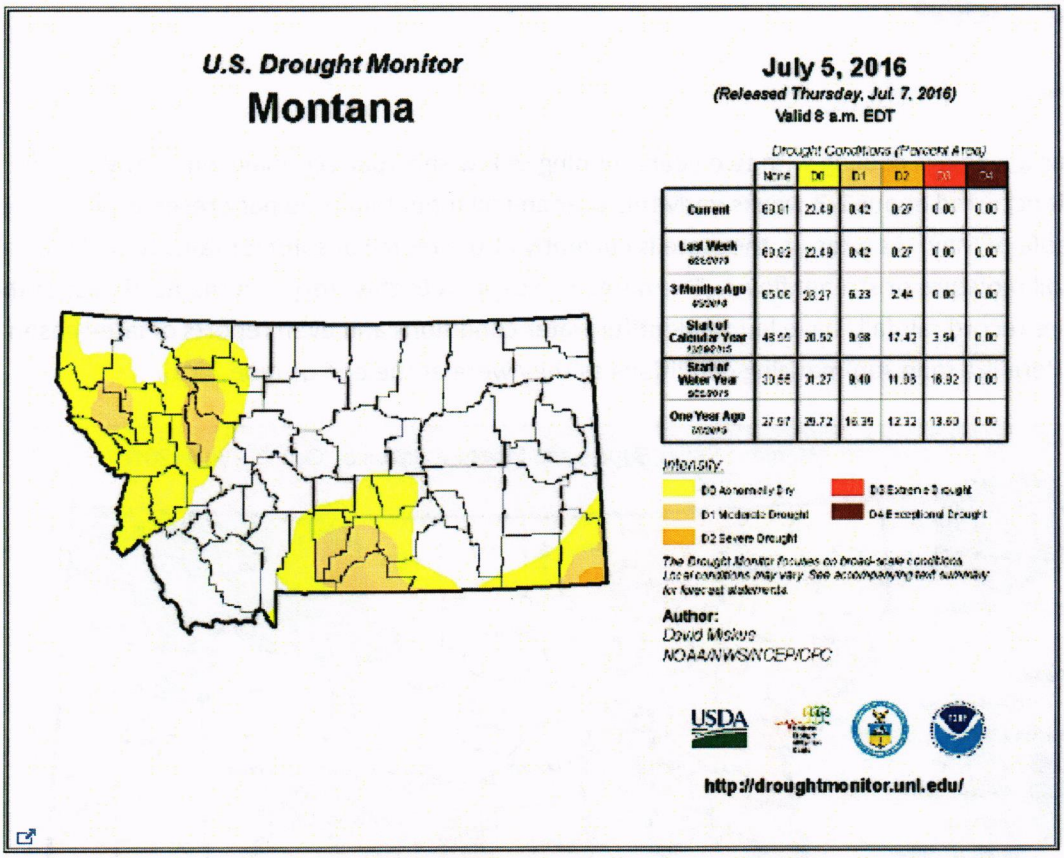
https://mslservices.mt.gov/Geographic_Information/Maps/Drought/

Drought Conditions:

According to the U.S. Drought Monitor, Montana continues to face pockets of dry conditions. When any portion of a county meets the D2 drought intensity rating (dark orange) for 8 consecutive weeks or a higher drought intensity rating, the USDA can automatically trigger a "Fast Track Secretarial" disaster

Davis 1:23

designation making funding and loan assistance programs available. To date, only Carter County has been designated with a D2 intensity level and only for one week.



http://droughtmonitor.unl.edu/

Flooding Conditions:

Phillips County was currently under a flood advisory.

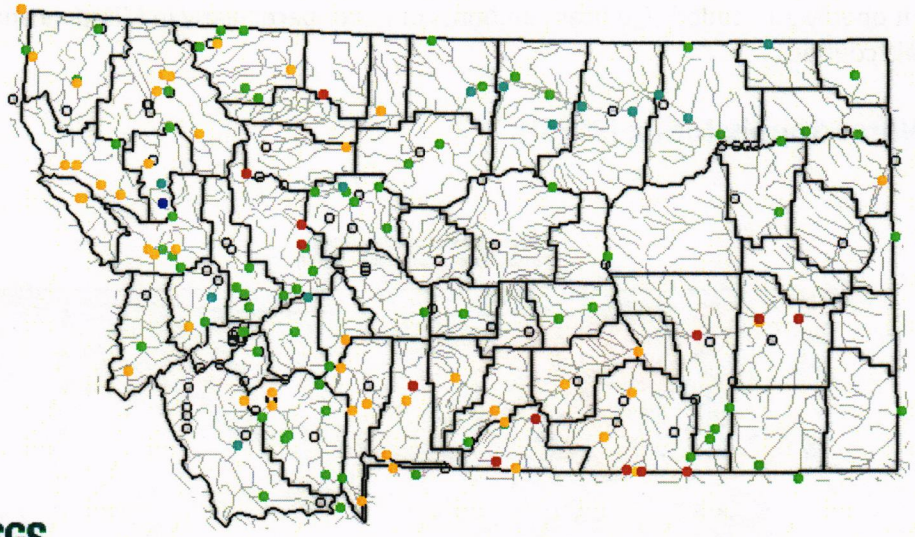
Real-Time Streamflow:

In general, the state is experiencing low moisture conditions due to two years of low snow accumulation during the winter months, as well as early runoff and higher temperatures. The notable exception to this summary is the Northeast portion of the state, where record rain events have led to above normal flow conditions. While drought is not widespread throughout the state, it is thanks to lucky rain events that have kept conditions at normal or just below normal. In the absence of more precipitation, conditions will continue to deteriorate.

Map of real-time streamflow compared to historical streamflow for the day of the year (Montana)

Montana ▼ or Water-Resources Regions ▼

Monday, July 11, 2016 13:30ET



USGS

Choose a data retrieval option and select a location on the map

○ List of all stations ◉ Single station ○ Nearest stations ○ Peak flow

Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

http://waterwatch.usgs.gov/?m=real&r=mt

Precipitation:

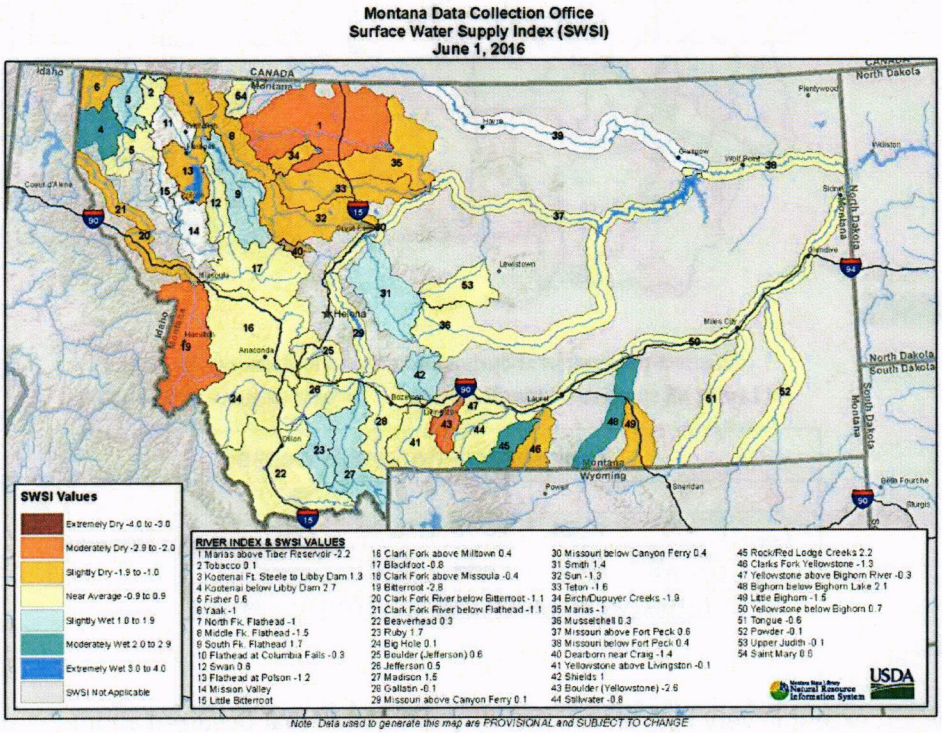
There is no snow left except in very high elevations. The runoff this year occurred about 2-3 weeks early, leaving the entire state at the mercy of summer rains to add any water supply. The total precipitation numbers for April -July show most of the state in the negatives, with the exception of the Northeast. The recent rain event mid-July added significantly to stream flows, but these flows will provide limited reprieve in the absence of continued rains. Meanwhile, reports continue to come in from ag producers in Sweet Grass, Stillwater, Deerlodge, and Powell counties of hauling water to livestock.

- The **Yellowstone** shows severely dry conditions in the southwest portion of Big Horn County as a result of spreading drought from South Dakota and Wyoming. Precipitation on July 10th increased in northern Gallatin, Sweet Grass, Stillwater, Yellowstone and Big Horn counties to above 100% of normal for this time of year.
- The **Upper Missouri** shows dry conditions coming up from the south in the West Yellowstone and Henry's Fork areas impacting the southern portions of Madison and Gallatin counties. West

Yellowstone is considering a moratorium on all construction due to low water (http://www.bozemandailychronicle.com/news/water-shortage-may-force-west-yellowstone-building-moratorium/article_df36cf30-0f13-5ae6-874d-d131d639b86d.html). Precipitation on July 10th increased in northern Gallatin, Jefferson, Silver Bow and eastern Beaverhead counties to above 100% of normal for this time of year.

- The **Lower Missouri** shows fairly wet conditions, and a flood warning is in effect for Phillips county.
- The **Clark Fork and Kootenai** basins are generally 50-70% below average precipitation. The rain event on July 10th added significant amounts of water particularly in Missoula and northern Ravalli counties.

Surface Water Supply Index (SWSI):



http://www.nrcs.usda.gov/wps/portal/nrcs/main/mt/snow/waterproducts/surface/#

Soil Moisture:

Soil moisture conditions are rapidly worsening, with the exception of the Northeast. The past two years of low snows have left little buffer in terms of soil moisture to absorb the loss of water supply.

- The **Yellowstone** is marked by soil moisture in the 5-10th percentile for much of Park, Gallatin, Sweet Grass, Stillwater and Carbon counties in the Southcentral and Carter and Powder River counties in the Southeast.

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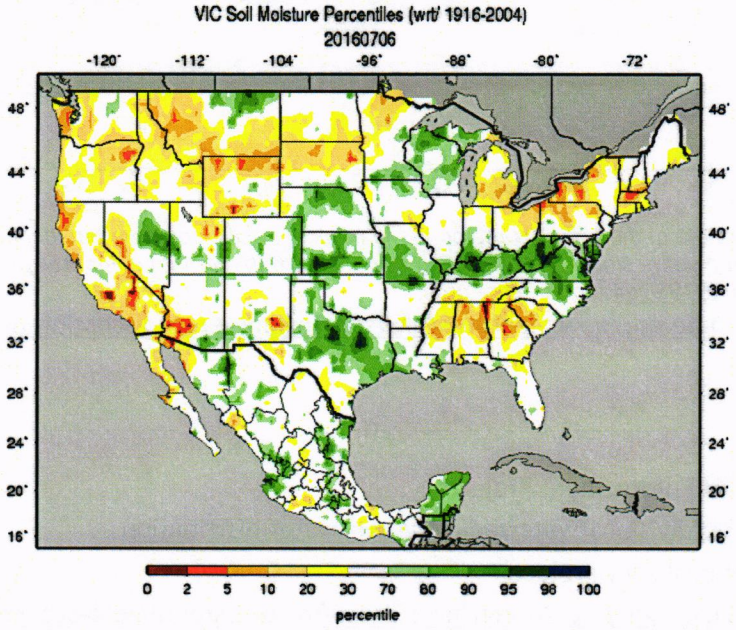
- The **Lower Missouri** is not experiencing soil moisture deficit as a whole, with some exception in Wheatland, Golden Valley and Musselshell counties.
- The **Upper Missouri** is currently holding onto soil moisture, but dry conditions are moving in from both the east and the west. The Rocky Mountain Front remains an area of concern with a Drought Alert set for Glacier, Pondera, Teton and Lewis & Clark counties.
- The **Clark Fork and Kootenai** basins are especially dry in the Northwest around Powell, Granite, Missoula, Lake and Sanders counties. Areas of Flathead County are likely to also pose soil moisture issues going forward in the absence of rain.



Reservoirs:

State-wide reservoirs peaked at the end of May, with most reaching full pool and spilling earlier than normal due to the advanced snowmelt rates. Since then inflows have dropped to near record lows for this time of year and demand will continue. Without inflows to refill the percentages will drop quickly. We are still waiting for the BOR report on federal projects. DNRC's projects, for the month of June, saw most of the reservoir capacities in the 90-100% or greater range compared to historic data for the month. The one notable exception is Nevada Creek, which was at 66% of average for June.

ENSO:

Experts agree the El Nino cycle is over and that it was one of the strongest since 1950. The potential of a La Nina cycle to follow is anticipated, but is currentlyl in a holding pattern. If temperatures go down and precipitation goes up, it likely won't be until September.

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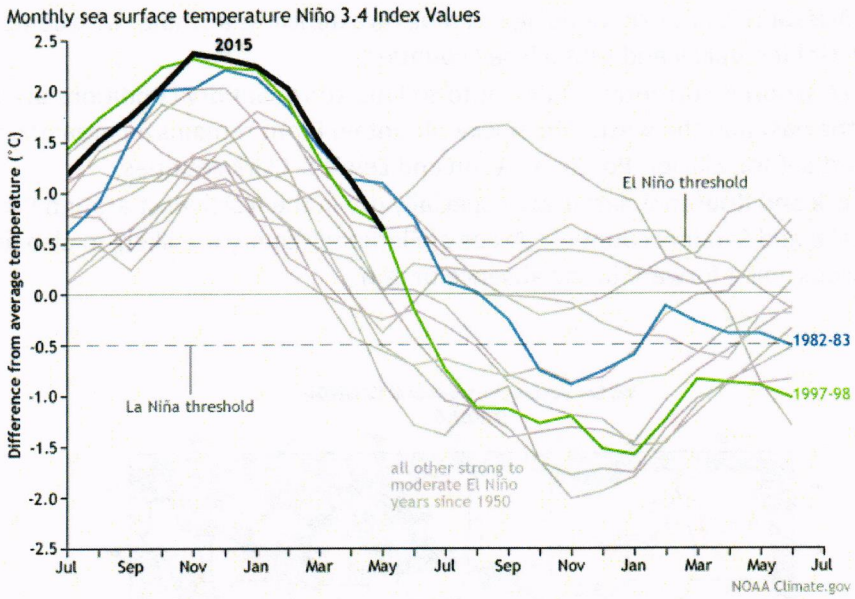

*Monthly sea surface temperature in the Niño 3.4 region of the tropical Pacific compared to the long-term average for all moderate-to-strong El Niño years since 1950, showing how 2015/16 (black line) compares to other events. Climate.gov graph based on **ERSSTv4** temperature data.*

https://www.climate.gov/news-features/blogs/enso/june-enso-discussion-new-neutral

Resources:

- DNRC/Water Court Enforcement Projects: http://dnrc.mt.gov/divisions/water/adjudication/water-distribution
- National Drought Resliency Project: http://www.nrcs.usda.gov/wps/portal/nrcs/detail/mt/newsroom/releases/?cid=STELPRDB1257622
- Current Conditions Maps (hourly/daily): http://www.nrcs.usda.gov/wps/portal/nrcs/detail/mt/snow/products/?cid=nrcseprd1137464
- USDA Drought Programs and Assistance: http://www.usda.gov/wps/portal/usda/usdahome?contentidonly=true&contentid=usda_drought_programs.html
- Montana Drought Website: www.drought.mt.gov